DELAWARE
Nutrient Management Notes

Vol. II, No. 2 Summer 2001

Demonstration Projects During the 2000 Growing Season

by Greg Binford, Dave Hansen, and Shawn Tingle of the University of Delaware

During the 2000 growing season, several extension projects were conducted on various farms in Delaware. The intent of this newsletter is to summarize some of the key points of these projects. These projects included demonstrations of:

- starter fertilizer in corn,
- application rates of poultry litter, and
- the PSNT in "high-yielding" environments.

Starter Fertilizer Project

This project involved demonstrations at eight farms on Delmarva. At each location, the corn was planted, managed, and harvested by the manager of that farm. This project involved replicated strips of with and without the application of starter fertilizer. Starter fertilizer is defined here as the application of nutrients with the planter during the planting of the corn seed. In all cases, the fertilizer was applied two inches to the side and two inches below the placement of the seed. The exact formulation and rate of fertilizer varied at each location, but all locations included both nitrogen and phosphorus in the formulation. We obtained a soil sample from each location near the time of planting from the surface 8-inch layer of soil and analyzed this soil for various nutrient concentrations. Yields were measured by using either a weigh wagon or a yield monitor on the combine. The mean grain yields for each treatment are shown in the following table.

Site	P FIV*	# of Reps	Grain Yield (bu/acre)			Grain Moisture (%)		
			without	with	LSD	without	with	LSD
1	23	4	178	186	6.9	21.2	21.0	0.2
2	39	1	155	164	NA	23.4	22.6	NA
3	235	2	185	195	50.8	18.5	19.1	12.7
4	214	3	180	197	4.3	21.3	21.1	2.0
5	68	3	161	166	20.0	20.5	20.8	0.8
6	304	4	117	117	27.8	17.0	17.1	0.6
7	232	1	125	135	NA	—	—	—
8	177	2	174	181	—	—	—	—
MEAN	——	——	160	168	6.2	19.9	19.9	0.3

*P FIV = lb/ac of Mehlich 1 P in the soil.
LSD = Least Significant Difference (P < 0.05)

CONTENTS

Poultry Litter Rate Demonstration Project 2

Starter/Poultry Manure Rate Project 2

PSNT Test Project 3

Commission 4

Poultry Litter Rate Demonstration Project

This project involved the application of poultry litter at various rates; most sites involved the application of three and six tons of litter per acre. The main goal of this project was to demonstrate that there is little need in applying more than three tons per acre of poultry litter. It is obvious from these data that there was little value in applying more than a three ton per acre rate. These projects were conducted under ideal conditions with extensive soil moisture, and it is quite possible that rates above three tons per acre could cause a decrease in yields when soil conditions are dry. Grain yields for each manure rate are shown in the following table.

Site	P FIV	# or Reps	Corn Grain Yields (bu/ac) at Three Litter Rates			
			1.5 ton/ac	3 ton/ac	6 ton/ac	LSD
1	260	2	NA	195	208	12.7
2	97	2	NA	181	184	25.4
3	283	1	NA	165	163	NA
4	87	2	162	177	174	46.6
5	233	2	173	176	181	33.9
6*	412	2	NA	161	157	12.7
7	153	2	NA	157	152	88.9
MEAN#	——	——	—	174	175	—

* = Rates were 4 & 8 tons, instead of 3 & 6 tons
\# = The average corn grain moisture for both 3 & 6 ton per acre treatments was 19.7%

Starter Fertilizer/Poultry Litter Manure Rate Project

This project involved the application of four poultry litter rates (0, 1.5, 3 & 6 ton/acre) in the early spring about one month before planting corn. This field was originally planted on May 1, however, a pounding rain the following day caused severe surface compaction and resulted in a less-than-optimal corn stand. As a result, the corn was replanted on May 15th. Each manure rate was planted with and without starter fertilizer. The starter fertilizer on this study consisted of 180 lb of a 10-20-10. This plot was planted in field-length strip plots, and yields were measured with a weigh wagon. The results in the following table show that there was a response to manure application up to 3 tons/acre. In addition, there was a positive yield response to starter fertilizer, and this response was similar for each manure rate.

Manure Rate	Grain Yield (bu/acre)		Starter Response
(tons/acre)	No Starter	Starter	(bu/acre)
0	142	157	15
1.5	165	177	12
3	177	191	14
6	181	194	13

Presidedress Soil Nitrate Test Project (PSNT)

The value of the PSNT was demonstrated at six locations during the 2000 growing season. At each site, a soil sample was taken when the corn was about 8 to 12 inches tall for PSNT analysis. At each site, replicated strips of with and without added N were established. The N rates ranged from 50 to 80 lb/acre depending on the site. Grain yield results are shown in the following table. This project was meant to focus on high-yielding environments to evaluate the use of this test in these environments. The critical concentration for the PSNT is 25 ppm in high-yielding environments. In other words, no additional N would be recommended at PSNT values above 25. These yield results suggest possible concern with using a value of 25 ppm in high-yielding environments. Additional trials are being conducted during the 2001 growing season on soils with PSNT values greater than 25 ppm.

Site	PSNT	# of Reps	Grain Yield (bu/acre)		
	ppm		Without N	With N	LSD
1	22	3	156.3	156.7	6.3
2	36	2	195.5	193.0	95.3
3	20	4	167.5	188.3	17.8
4	54	4	186.0	201.0	4.3
5	22	4	177.3	189.5	13.5
6	12	3	164.3	185.0	17.4

At another site that had a PSNT value of 27 ppm, we applied 0, 50, & 100 lb N/acre as sidedressing (5 replications of each N rate). The average yield for the 0 N treatment was 164.8 bu/acre, while the 50 lb N treatment was 189.0 bu/acre, and the 100 lb N treatment was 199.4 bu/acre; the LSD ($P < 0.05$) for this site was 8.0 bu/acre.

NUTRIENT MANAGEMENT CERTIFICATION CLASSES SCHEDULED

Signup is underway for SESSION I of the Delaware Nutrient Management Program certification credit for farmers that produce organic nutrients or apply nutrients to land that they own, lease, or otherwise control. Farmers who do not use manure produced on their farms (nutrient generators) and farmers who use manure or commercial fertilizer on their farm operations (private nutrient applicators) need to complete this session for credit toward certification required by law. SESSION I is a general session that will provide 3 credits toward a total of 6 needed by nutrient generators, and toward a total of 9 needed for private nutrient applicators. There will be no charge for these classes.

CERTIFICATION SCHEDULE

SESSION I	Sep. 6th 6 - 9 PM Research and Educ. Center, Georgetown call 856-7303 Oct. 9th 9 AM - 12 PM Kent County Extension Office call 697-4000
NUTRIENT CONSULTANT	Aug. 1st 1 - 4 PM Kent County Extension Office call 856-7303

HOW TO GET INVOLVED AND VOICE YOUR OPINION:

Meet and talk to commission members.

Attend commission meetings; contact the Delaware Nutrient Management Program for dates and locations.

Nutrient Management Program
(302) 698-4500 or 1-800-282-8685

BILL ROHRER
Program Administrator

STEVE HOLLENBECK
Environmental Coordinator

CYNDI ROWE
Senior Secretary

University Nutrient Specialists
DR. DAVE HANSEN
(302) 856-7303

DR. GREG BINFORD
(302) 831-2146

SHAWN TINGLE
(302) 856-7303

SYDNEY YOUNG
(302) 856-7303

County Extension Offices
CARL DAVIS - New Castle
(302) 831-2506
GORDON JOHNSON - Kent
(302) 697-4000
DERBY WALKER - Sussex
(302) 856-7303

EMAIL
nm@dda.state.de.us

WEBSITE
www.state.de.us/deptagri

Upcoming DNMC meetings

- **JULY 10TH, 7PM**
- **AUGUST 14TH, 7PM**
- **SEPTEMBER 11TH, 7PM**
- **OCTOBER 9TH, 7PM**

DDA, Dover DE

Doc. # 65 01 12 01 06 17
Vol. II, No. 2
Summer 2001

Delaware Nutrient Management Commission

NAME	APPOINTMENT	CONTACT INFO.	REPRESENTATION	TITLE
William Vanderwende	Senate	(302) 349-4423	Sussex County Dairy Producer	Chairman, Commission
David Baker	Senate	(302) 378-3750	New Castle County Grain Industry	Chairman, Personnel Subcommittee; DNMC Vice Chairman
Edwin Brown, II	Governor	(302) 227-2053	Golf Course/Lawn Care Industry	
Stephen Corazza	House of Representatives	(302) 653-3583	New Castle County Poultry Producer	Chairman, Government Interaction Subcommittee
James Elliot	Governor	(302) 539-3409	Sussex County Public Citizen	
Carlton Fifer	Senate	(302) 697-2141	Kent County Vegatable Industry	
John Hughes	Governor	(302) 739-4411	Director, Division of Soil & Water Conservation DNREC	
David Jones	House of Representatives	(302) 422-8017	Environmental Advocacy Group	
Tony Keen	Senate	(302) 684-3196	Nutrient Consultant	Chairman, Technology Subcommittee
Connie Larimore	House of Representatives	(302) 398-8304	Kent County Poultry Producer	
Dale Ockels	Governor	(302) 684-0456	Sussex County Swine Producer	Chairman, Compliance & Enforcement Subcommittee
Brian Schilling	House of Representatives	(302) 934-7684	Commercial Applicator	Chairman, Industry Relations
Carl Solberg	Senate	(302) 492-1225	Environmental Advocacy Group	Chairman, Program & Education Subcommittee
Richard Sterling	Governor	(302) 653-7060	Commercial Nursery Industry	
Charles West, II	House of Representatives	(302) 238-0137	Sussex County Poultry Producer	Chairman, Budget Subcommittee
Michael T. Scuse	(Ex-Officio)	(302) 698-4500	Secretary, Dept. of Agriculture	
Nicholas A. DiPasquale	(Ex-Officio)	(302) 739-4403	Secretary, Dept. Natural Resources & Environmental Control	
Vincent Meconi	(Ex-Officio)	(302) 577-4502	Secretary, Dept. of Health and Social Services	
William Rohrer	(Ex-Officio)DNMC	(302) 698-4500	Nutrient Management Program Administrator	

DELAWARE

Nutrient Management Program

2320 South DuPont Hwy
Dover, DE 19901